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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|--------------------|
| 09/964,336 | 09/28/2001 | Wataru Ito | 500.40713X00 | 2307 |
| 20457 | 7590 | 10/19/2004 | EXAMINER | |
| ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889 | | | | BHATNAGAR, ANAND P |
| ART UNIT | | PAPER NUMBER | | |
| | | 2623 | | |

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/964,336 | ITO ET AL. |
| | Examiner Anand Bhatnagar | Art Unit 2623 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1-5,10,13 and 14 is/are rejected.
 7) Claim(s) 6-9, 11, and 12 is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 09/28/01 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. A.) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant calculates difference of luminance between an input image and each of a plurality images from a storage device but only one image was placed into storage. How does one compute differential images from a single image in a storage device? Examiner will address these claim as best understood.

B.) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant calculates differential images but only one image is available in the storage device. These claims are vague and indefinite. Examiner will address these claims as best understood.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirsten (U.S. patent 5,724,475).

Regarding claims 1, 13, and 14: An intruding object detecting method the steps inputting images of a monitoring visual field comprising from an image pickup device (Kirsten; col. 1 lines 5-9);

storing said images from said image pickup device in a memory device(fig. 2 elements 70-78 and col. 3 lines 53-56);

calculating for each pixel a difference luminance value between an input image from said image pickup device and each images outputted from said memory device to obtain respective differential images (fig. 34 , col. 31 lines 43-67, and col. 32 lines 1-3, wherein difference images are obtained of pixel differences between several sequential images);

Kirsten discloses to detect a moving object in a series of obtained images by first determining the differences between each sequential pair of images and then summing the differential images. Kirsten further discloses to obtain the differential images by comparing the pixel values, which have already been digitized to zeros and ones, between the pairs of images. Kirsten does not

disclose to obtain luminance differences of the pixels, between images, to detect any change taking place in the sequence of images. It would have been obvious to one skilled in the art to modify the system to compare different features of pixels (such as luminance, chrominance, etc.) since this is well known in the art of image processing to detect changes in a sequence of images.

adding said respective differential images, each of which is given weight with predetermined proportion image to generate a synthesized differential image (fig. 34 and col. 32 lines 14-29 and 34-39, wherein the differential images, B-A and C-B, are combined to form a synthesized image, C-A, and wherein setting the window sizes of the images is read as giving weight with a predetermined proportion);

Kirsten discloses to obtain surveillance images and to detect any motion in these images by taking differential images, between each adjacent pair of sequential images, and summing the obtained differential images. Kirsten further discloses to perform this process on images that have previously undergone digitization (col. 9 lines 5-10). Kirsten does disclose to binarize the synthesized differential image and detect a moving object in the images. It is a matter of configuration of when to binarize/digitize an image(s).

Regarding claim 2: A method further comprising the steps of making and storing a reference background image of said monitoring visual field, which said object be detected is not picked up.

Kirsten teaches to observe a set of sequential images wherein the object is located in the images (fig. 34). Kirsten does not teach to obtain a reference background image/template image wherein the object is not present. It is well known in the art to obtain at least one initial template/reference image of a scene to determine any motion taking place in the scene. Examiner takes Official Notice.

Regarding claim 3: It is rejected for the same reasons as claim 1 and 2 combined because the images are sequential images, i.e. at different sequential times.

Regarding claim 4: A method wherein said predetermined proportion is a weighting coefficient (Kirsten; col. 32 lines 14-27, wherein the window size can be changed, this changing is obviously performed by some kind of scaling/weighting process).

Regarding claim 5: A method wherein said weighting coefficient image is a set of said weighting coefficient images corresponding to respective predetermined zones obtained by dividing said monitoring visual field (Kirsten; col. 32 lines 14-27, wherein the windows placed on the nonzero pixels are read as dividing the monitoring field since window is placed in only a certain portion of the image. The nonzero areas are read as the predetermined zones which are the zones in the image wherein an object has moved).

Regarding claim 10: A method according wherein said predetermined proportion for weight given each of said respective differential images selected

based on an apparent magnitude of movement of an object in corresponding one of predetermined zones obtained by dividing said monitoring visual field (Kirsten; col. 32 lines 14-27, wherein the window size depends on the area of the nonzero pixels which is the area of the moving object. The area of nonzero pixels is read as the magnitude of the movement of the object).

Allowable Subject Matter

2. Claims 6-9, 11, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rafanelli et al. (U.S. patent 6,192,322) for a moving object detection.

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anand Bhatnagar whose telephone number is (703) 306-5914, whose supervisor is Amelia Au whose number is 703-308-6604, group fax is 703-872-9306, and Tech center 2600 customer service office number is 703-306-0377.


Anand Bhatnagar

Art Unit 2623

October 17, 2004


SAMIR AHMED
PRIMARY EXAMINER